

U.S. Application Serial No. 10/608,906  
Attorney Docket: 46107-0037  
Response to Office Action of November 2, 2005

### REMARKS

This document is in response to the Office Action dated November 2, 2005 wherein the Examiner:

- (i) rejected claims 1, 2, 13, 14, 21 and 22 under 35 U.S.C. § 102(b) as being anticipated by Furukawa et al. (U.S. Patent No. 6,334,656) ("Furukawa"),
- (ii) rejected claims 3 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Furukawa,
- (iii) rejected claims 4, 5, 11, 12, and 15-18 under 35 U.S.C. § 103(a) as being unpatentable over Furukawa in view of Park et al. (U.S. Patent No. 6,286,637) ("Park"), and
- (iv) indicated that claims 6-10 and 19 and 20 are allowed.

Applicant has thoroughly reviewed the outstanding Office Action including the Examiner's remarks and the references cited therein. Applicant thanks the Examiner for allowing claims 6-10, 19 and 20. The following remarks are believed to be fully responsive to the Office Action and are believed to render all claims at issue patentably distinguishable over the cited references.

#### Rejections under 35 U.S.C. § 102

Examiner has rejected claims 1, 2, 13, 14, 21 and 22 under 35 U.S.C. § 102(b) as being anticipated by Furukawa. The standard for a rejection under 35 U.S.C. § 102 is established in MPEP § 2131. A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. If an independent claim is allowable under 35 U.S.C. § 102, then any claim depending therefrom is also allowable. Applicant respectfully traverses said rejection for the reasons set forth below.

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The Furukawa reference is directed to a method and system for computing a vehicle body slip angle in a vehicle movement control (see Furukawa, Abstract). The Furukawa reference discloses that one may control a vehicle by computing a "hypothetical vehicle body slip angle" (shown in Furukawa, Fig. 1, step 4 as "compute  $\beta_e$ ") and "converging the vehicle body slip angle to zero" (see Furukawa, column 3, lines 33-51 and column 6, lines 30-41). Essentially, the Furukawa reference discloses a method and system for controlling the movement of a vehicle by calculating the "vehicle body slip angle" and controlling the operating of the system such that this variable approaches zero (See Id.). This is very different from Applicant's claimed invention.

In contrast to Furukawa, the invention as claimed by Applicant comprises a yaw stability system and a method for controlling yaw in a vehicle. Furukawa does not disclose, discuss or suggest the identification or determination of a "desired yaw rate" as provided for in independent claims 1 and 13. Nor does Furukawa disclose, discuss or suggest the determination of "a yaw rate tracking error" or the minimization of the "yaw rate tracking error" as provided for by claims 1 and 13.

The fundamental difference between the claimed invention and the Furukawa reference is the variable about which the movement of the vehicle is controlled. Furukawa uses various sensed conditions (one of which happens to be the yaw rate of the vehicle) to determine a "hypothetical vehicle body slip angle" (shown in Furukawa, Fig. 1, step 4 as "compute  $\beta_e$ ") and then operates to control the movement of the vehicle by "converging the vehicle body slip angle to zero" (see Furukawa, column 3, lines 33-51 and column 6, lines 30-41). Applicant's claimed invention, in contrast, senses the yaw rate of the vehicle compares this sensed yaw rate to the

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desired yaw rate of the vehicle (which is based on certain operating conditions) and controls the movement of the vehicle such that the deviation between the sensed yaw rate and the desired yaw rate is minimized (See, e.g., paragraph [0010] of the Application). The Furukawa reference does not disclose, discuss or suggest the limitations of determining "a yaw rate tracking error", determining "a control yaw moment to minimize the yaw rate tracking error" nor communicating "a control command to the one or more selected braking devices to induce said control yaw moment" as provided for by independent claims 1 and 13. As such, Applicant respectfully submits that the Furukawa reference fails to anticipate claims 1, 2, 13, 14, 21 and 22.

In addition, Furukawa also fails to disclose other limitations of the claims. For example, claims 2 and 13 describe determining the control yaw moment using a sliding mode control law "based on a lumped mass vehicle model". Furukawa does not disclose "a lumped mass vehicle model" as provided for by the claims. Because the Furukawa reference fails to disclose each and every element as set forth in independent claims 1 and 13, as discussed above, Applicant respectfully submits that claims 1, 2, 13, 14, 21 and 22 are allowable and respectfully requests that the Examiner withdraw his rejection under 35 U.S.C. §102 thereto.

#### **Rejections under 35 U.S.C. § 103**

Examiner has rejected (i) claims 3 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Furukawa, and (ii) rejected claims 4, 5, 11, 12, and 15-18 under 35 U.S.C. § 103(a) as being unpatentable over Furukawa in view of Park. Applicant respectfully traverses these rejections for the reasons set forth below.

Applicant submits that, because independent claims 1 and 13 are allowable, all claims dependent therefrom should also be allowable. Therefore, Applicant respectfully submits that,

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since claim 3-5, 11-12, 15-18 and 23 ultimately depend either from claim 1 or 13, Examiner's rejections under 35 U.S.C. § 103(a) are misplaced and claims 3-5, 11-12, 15-18 and 23 are also allowable.

In addition to above, Applicant submits that, even if combined, the Park and Furukawa references would still fail to disclose all of the limitations of the claims. For example, neither Park nor Furukawa disclose (i) "an open loop controller providing a current optimal torque without a current feedback signal from the electromagnetic retarder" as provided for by claim 11, (ii) "a parametric model control unit" as provided for by claim 12, the determination of "a saturation torque for the selected braking device based on a quadratic function of control element speed and excitation current" as provided for by claim 15, nor "calculating the control yaw moment based on a saturation function" as provided for by claim 22.

Furthermore, the combination of the Park and Furukawa references would specifically teach away from the invention as claimed by Applicant. The combination would teach a method and system for controlling a vehicle by computing a "hypothetical vehicle body slip angle" and "converging the vehicle body slip angle to zero" that also included an "eddy current brake". However, as described above, the control of a vehicle by "converging the vehicle body slip angle to zero" is very different from the invention as claimed by Applicants (See "Rejections under 35 U.S.C. § 102" above).

### Conclusion

In light of the above remarks, it is respectfully submitted that Applicant has responded in a fully satisfactory manner to all matters at issue in this Application, and that this Application is now in condition for allowance. In this regard, Applicant has made every effort to comply with

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the requirements set forth in the Office Action as well as the statutory requirements.  
Accordingly, Applicant respectfully requests that the Examiner allow the pending claims and pass the Application to issue. If the Examiner believes that personal communication will expedite prosecution of this application, he is invited to telephone the undersigned at (248) 433-7570.

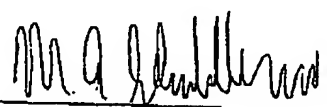
Applicant believes there are no fees due for this document, however, if any fees are due, the Patent Office is authorized to charge or refund any fee deficiency or excess to Deposit Account No. 04-1061 in the name of Dickinson Wright PLLC.

Prompt and favorable consideration of this response is respectfully requested.

Respectfully submitted,

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